

REMARKS

Claims 3, 5 and 6 are pending in the present application after entering the foregoing amendments set forth above. Claims 7-9 have been cancelled from the application, and claims 3, 5 and 6 have been amended.

In the Office Action dated 12 June 2003, claims 3 and 5-9 were rejected as follows:

(A) Claims 3, 5-7 and 9 were rejected under 35 U.S.C. Section 103 over the combination of U.S. Patent Nos. 4,192,729 issued to Cancelleri et al. ("Cancelleri") and 5,415,518 issued to Hsieh et al. ("Hsieh").

(B) Claims 3, 8 and 9 were rejected under 35 U.S.C. Section 103 over U.S. Patent No. 5,447,615 issued to Ishida ("Ishida").

(C) Claim 3 was rejected under the judicially created doctrine of obviousness type double patenting.

A. Response to Section 103 Rejection – Cancelleri and Hsieh

Claims 3, 5-7 and 9 were rejected under §103 over the combination of Cancelleri and Hsieh. Claims 3, 5 and 6 are the only pending claims subject to this rejection. Therefore, the following comments are directed primarily to claim 3.

1. Claim 3 is Directed Toward a Contact Assembly Having, *inter alia*, a Plurality of Electrical Contacts in Which Individual Contacts Have a First Section Outside of a Workpiece Perimeter Area That Projects Generally Downward and a Second Section Projecting Inwardly From the First Section

Claim 3 is directed toward a contact assembly for supplying electrical power to a microelectronic workpiece during an electrochemical process. The contact assembly is generally used for electroplating or electroetching workpieces with very small features. The contact assembly includes a plurality of contacts arranged along a perimeter area of the microelectronic workpiece. The individual contacts include a first section positioned outwardly from the workpiece perimeter area, and the first section projects

generally downward. The individual contacts also include a second section projecting inwardly from the first section and a contact face at an end of the second section inside of the workpiece perimeter area. The contact face is configured to contact a processing surface of the workpiece upon which material is to be deposited and/or etched using an electrochemical process. The contact assembly further includes a sealing system that presses against the processing surface of the workpiece to form a seal that inhibits the processing fluid from contacting the contact faces of the contacts.

Contact assemblies in accordance with claim 3 are generally well suited for plating or etching materials from semiconductor wafers or other microelectronic wafers that have small features sizes. One aspect of the contact assemblies is that having a plurality of contacts provides a more uniform current distribution compared to systems with only a single contact. Another aspect of the contact assemblies is that the individual contacts have a first section projecting generally downward and a second section projecting inwardly from the first section to position contact face in a perimeter area of the workpiece. This configuration allows the contact faces to engage the processing surface in the perimeter area of the workpiece.

2. The Combination of Cancelleri and Hsieh Fails to Disclose or Suggest, *inter alia*, a Contact Assembly Having a Plurality of Contacts With a First Section Projecting Downward Outside of a Perimeter Area of the Workpiece and a Second Section Projecting Inwardly From the First Section

Cancelleri and Hsieh disclose systems with only a single electrode in contact with the workpiece, and the electrodes each have only a single, straight section. Cancelleri is directed to an electroetching system having only single electrode that contacts the processing surface of the workpiece. The single electrode in Cancelleri has only a shaft with a single straight section over a region of the workpiece. Hsieh discloses an electroetching system having only a single electrode that contacts the backside of the workpiece in the center. As with Cancelleri, the electrode in Hsieh only has a single straight section.

The combination of Cancelleri and Hsieh fails to disclose or suggest several of the features in claim 3. For example, these references fail to disclose or suggest having

a plurality of electrical contacts arranged along a perimeter area of the workpiece. Cancelleri and Hsieh also fail to disclose or suggest individual electrical contacts with a first section that projects generally downward outside of the perimeter area of the workpiece. Instead, both of these references disclose electrodes with only a single straight shaft juxtaposed to a surface of the workpiece. Cancelleri and Hsieh further fail to disclose or suggest electrical contacts with second sections projecting inwardly from the first section to position a contact face against the processing surface of the workpiece because these references only have the single, straight section. Lastly, these references further fail to disclose or suggest a yieldable sealing system configured to engage the processing surface of the workpiece to inhibit the processing solution from contacting the contact faces of the contacts. Therefore, claim 3 is patentable over the combination of Cancelleri and Hsieh.

Claims 5 and 6 are patentable over the combination of Cancelleri and Hsieh because these claims depend from independent claim 3 and also because the additional features in these claims are not disclosed or suggested by these references. Thus, the rejection of claims 3, 5 and 6 under §103 over Cancelleri and Hsieh should be withdrawn.

B. Response to Section 103 Rejection – Ishida

Claim 3, 8 and 9 were rejected under §103 over Ishida. Because claims 8 and 9 have been cancelled from the application, the following comments are directed to claim 3.

Claim 3 is patentable over Ishida under §103 because this reference fails to disclose or suggest several features of claim 3. For example, Ishida does not disclose or suggest individual electrical contacts that have a first section projecting generally downward and a second section projecting inwardly from the first section. The electrical contacts in Ishida have only flat, horizontal portions outside of the workpiece, and there is no discernable advantage to modifying the contacts in Ishida to have sections outside of the workpiece that project generally downward. It follows that Ishida also fails to disclose or suggest a contact with a second section projecting from a downwardly

projecting first section. Therefore, claim 3 is patentable over Ishida because this reference fails to disclose or suggest several features of claim 3.

C. Response to Obviousness-Type Double Patenting Rejections

Claim 3 was rejected under the doctrine of obviousness-type double patenting over U.S. Application No. 09/823/948. Claim 3 was also rejected under the doctrine of obviousness-type double patenting over the following U.S. Patent Nos.: 6,461,494; 6,309,524; 5,985,126; 5,980,706; and 6,080,291. To expedite prosecution of the pending claims, please find enclosed a Terminal Disclaimer regarding the above-listed application and patents. Although the term of the present application is subject to the enclosed Terminal Disclaimer, amended claim 3 is believed to be patentably distinct from the claims of the above-listed application patents set forth in the present Office Action. The submission of the enclosed Terminal Disclaimer is accordingly not an admission or agreement that claim 3 as amended should be subject to the obviousness-type double patenting rejections in the present Office Action.

D. Conclusion

In view of the foregoing, the pending claims in the application comply with 35 U.S.C. § 112 and are patentable over the applied art. The applicants accordingly request reconsideration of the application and a Notice of Allowance regarding the pending claims. If the Examiner has any questions or believes a telephone conference would expedite prosecution of this application, the Examiner is encouraged to call Paul Parker at (206) 359-3258.

Respectfully submitted,

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